

## PATENT ABSTRACTS OF JAPAN

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### (54) ELECTRONIC PROGRAM GUIDE SYSTEM AND ELECTRONIC PROGRAM GUIDE DISPLAY METHOD

(57)Abstract:

**PURPOSE:** To improve the operability and to select a desired program quickly and surely by providing a means integrating a 1st electronic program guide and a 2nd electronic program guide to the system.

**CONSTITUTION:** An electronic program guide (EPG) receiver 6 of an AV system 1 at first selects a receiver receiving EPG data. For example, when an IRD 4 is designated, the EPG data sent via a satellite are received. An EPG receiver 6 converts a format of the received EPG data into an integral format. When the EPG receiver 6 designates a television receiver 6, EPG data of a program sent in terms of a ground wave are received. The format of the EPG data is converted into the integrated format by the EPG receiver 6. Thus, the EPG data of an AV equipment connecting to the AV system 1 are stored in a RAM in the EPG receiver 6 while being in the integrated state.

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## CLAIMS

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[Claim(s)]

[Claim 1] The electronic program guide system characterized by having an integrated means to unify a storage means to memorize the 1st electronic program guide of the 1st system, and the 2nd electronic program guide of said 1st system and the 2nd different system, and said the 1st electronic program guide and 2nd electronic program guide.

[Claim 2] Said storage means is an electronic program guide system according to claim 1 characterized by memorizing said the 1st electronic program guide and 2nd electronic program guide in the condition of having been unified by said integrated means.

[Claim 3] It is the electronic program guide system according to claim 1 which said storage means memorizes said the 1st electronic program guide and 2nd electronic program guide in the condition before being unified by said integrated means, and is characterized by unifying said the 1st electronic program guide and 2nd electronic program guide when reading appearance of said integrated means is carried out from said storage means.

[Claim 4] For said 1st system and 2nd system, said integrated means is an electronic program guide system according to claim 1 characterized by unifying said the 1st electronic program guide and 2nd electronic program guide in a different format.

[Claim 5] Said integrated means is an electronic program guide system according to claim 1 characterized by unifying one side of said 1st electronic program guide and 2nd electronic program guide to compensate for a format of another side.

[Claim 6] The electronic program guide system according to claim 1 characterized by having further a receiving means to receive said the 1st electronic program guide and 2nd electronic program guide from said the 1st system and 2nd system.

[Claim 7] The electronic program guide system according to claim 1 characterized by having further a generation means to generate the indicative data which displays said electronic program guide integrated.

[Claim 8] The electronic program guide system according to claim 7 characterized by having further an assignment means to specify the conditions of said electronic program guide to display.

[Claim 9] The electronic program guide system according to claim 7 characterized by having further a display means to display said electronic program guide integrated, based on the indicative data generated by said generation means.

[Claim 10] The electronic program guide system according to claim 1 characterized by having further a conversion means to change into the command corresponding to the system of said program which chose from said electronic program guide said command generated by selection means to choose a predetermined program, generating means to generate the command which chooses the program chosen by said selection means, and said generating means.

[Claim 11] Said conversion means is an electronic program guide system according to claim 10 characterized by having rewritable memory.

[Claim 12] Said conversion means is an electronic program guide system according to claim 10 characterized by being prepared in the remote commander.

[Claim 13] The electronic program guide method of presentation characterized by memorizing the 1st electronic program guide of the 1st system, and the 2nd electronic program guide of said 1st system and the 2nd different system, and unifying and displaying said the 1st electronic program guide and 2nd electronic program guide.

[Claim 14] The electronic program guide system characterized by using the mail delivery area information that the area which delivers mail is specified as information which transmits the electronic program guide which changes with areas, and specifies said area by the receiving side in the electronic program guide system which chooses the electronic program guide of a predetermined area.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the electronic program guide system and the electronic program guide method of presentation which enabled it to obtain the unified telegraph program guide in two or more systems especially about an electronic program guide system and the electronic program guide method of

presentation.

[0002]

[Description of the Prior Art] The program guide for choosing the program of television broadcasting is superimposed and transmitted to a picture signal, and the so-called electronic program guide (EPG:Electrical Program Guide) system which displayed this is known in the display of a receiving side.

[0003] Digital direct broadcasting by satellite which these people indicated previously in this EPG system as the thing of a VBI (Vertical Blanking Interval) method which is indicated by for example, six to Patent Publication Heisei 504165 official report, and the related U.S. Pat. No. 5,353,121 official report, and Japanese Patent Application No. No. 325940 [ six to ] (there is a thing of a digital satellite method which is used by DSS:Digital Satellite System (trademark of Hughes Communication).)

[0004] A VBI method inserts and transmits the VBI data which constitute EPG (electronic program guide) in terrestrial television broadcasting usually (VHF (Very High Frequency) band) to the location which does not affect the original image of the horizontal scanning line. He generates the indicative data of an electronic program guide, and is trying to display on a monitor in a receiving side from the VBI data which stored and stored this VBI data.

[0005] on the other hand, in a digital satellite method, EPG data digitize with original image data -- having -- further -- a packet -- it is-izing and transmitted. This EPG data is stored in memory, a corresponding indicative data is generated, and it is made to display on a monitor in a receiving side.

[0006] Also in which method, a user can see the electronic program guide displayed on the monitor, and can choose the program he expects viewing and listening.

[0007]

[Problem(s) to be Solved by the Invention] For example, in the system which receives terrestrial television broadcasting, he receives EPG transmitted through a satellite in the system which receives EPG of this VBI, and displays this, and receives satellite broadcasting service, and is trying to display in the conventional AV system.

[0008] Thus, since EPG is functioning independently in each system, respectively, For example, since the broadcast terrestrial broadcast also minded the satellite for the desired program is sufficient, if it is broadcasting whether the program is broadcast to view and listen, while searching the time etc. with EPG of a VBI method When the desired program is not listed by the EPG (not broadcast), it is necessary using EPG of satellite broadcasting service to perform same retrieval again. For this reason, the technical problem from which it becomes difficult to view and listen to a predetermined program promptly and certainly occurred.

[0009] This invention is made in view of such a situation, and enables it to choose a desired program promptly and certainly.

[0010]

[Means for Solving the Problem] An electronic program guide system according to

claim 1 is characterized by having an integrated means to unify a storage means to memorize the 1st electronic program guide of the 1st system, and the 2nd electronic program guide of the 2nd different system from the 1st system, and the 1st program guide and the 2nd program guide.

[0011] The electronic program guide method of presentation according to claim 13 memorizes the 1st electronic program guide of the 1st system, and the 2nd electronic program guide of the 1st system and the 2nd different system, and is characterized by unifying and displaying the 1st electronic program guide and 2nd electronic program guide.

[0012] An electronic program guide system according to claim 14 transmits the electronic program guide which changes with areas, is a receiving side, and is characterized by using the mail delivery area information that the area which delivers mail is specified as information which specifies an area in the electronic program guide system which chooses the electronic program guide of a predetermined area.

[0013]

[Function] In an electronic program guide system according to claim 1, the 1st electronic program guide and 2nd electronic program guide are memorized by the storage means, and an integrated means unifies the 1st electronic program guide and 2nd electronic program guide.

[0014] In the electronic program guide method of presentation according to claim 13, while the 1st electronic program guide and 2nd electronic program guide are memorized, these unify and are displayed.

[0015] In an electronic program guide system according to claim 14, the mail delivery area information that the area which delivers mail is specified as information which specifies an area is used.

[0016]

[Example] Drawing 1 expresses the example of AV structure of a system which applied the electronic program guide system of this invention. In this AV system 1, VCR (Video Cassete Recoder) 2 and 3, IRD (Integrated Receiver/Decoder)4, the television (TV) receiving set 5, and the EPG receiver 6 are mutually connected by the AV line 11 and the control line 12.

[0017] The AV line 11 is constituted by three lines, a composite video signal line, an audio L signal line, and an audio R signal line. Moreover, the control line 12 can be considered as the configuration of wye yard SIRCS (Wired Sony Infrared Remote Control System), when not forming the translator 205 ( drawing 2 ) mentioned later. Therefore, these AV equipments have the video signal transceiver section which delivers and receives the video signal transmitted through the AV line 11, and an audio signal, and the AV equipment control signal transceiver section which deliver and receive CDC delivered and received through the control line 12.

[0018] Moreover, the EPG receiver 6 has IR receive section 6B which receives the infrared signal (IR:Infrared) which a remote commander 241 generates. IRD4 and the

TV receiving set 5 have the IR receive sections 4B and 5B which receive the infrared signal which a remote commander 5 ( drawing 4 ) generates.

[0019] Drawing 2 expresses the example of a configuration inside the EPG receiver 6. The I/O (I/O) section 201 is constituted by the video signal transceiver section 202 and the AV equipment control signal transceiver section 203. The video signal transceiver section 202 performs actuation which delivers and receives a video signal and an audio signal to the AV line 11, and the AV equipment control signal transceiver section 203 performs processing which delivers and receives a control signal to the control line 12.

[0020] The translator 205 which builds in EEPROM (Electrically Erasable Programmable Read Only Memory)206 as rewritable memory performs processing which changes the command sent out to the AV equipment of each manufacturer who constitutes the AV system 1 into the command used in each manufacturer's AV equipment. The command used in each manufacturer's AV equipment is memorized by EEPROM206 currently made as [ exchange / it / comparatively easily ] if needed. Backed-up RAM (Random Access Memory) (or EEPROM is sufficient)207 memorizes as a database the EPG data which the AV equipment connected to the AV system 1 received. The controller 204 is made as [ control / each of these circuits / suitably ].

[0021] Drawing 3 shows the example of a configuration inside [ for receiving satellite broadcasting service ] IRD4. The RF signal (bit stream) outputted from LNB(Low Noise Block downconverter)61a of a parabolic antenna 61 is supplied to the tuner 21 of a front end 20, and gets over. The output of a tuner 21 is supplied to the QPSK demodulator circuit 22, and a QPSK recovery is carried out. The error correction circuit 23 is supplied, an error is detected and corrected, and the output of the QPSK demodulator circuit 22 is amended if needed.

[0022] The key required to decode a code is stored in CAM (Conditional Access Module)33 constituted with the IC card which consists of CPU (Central Processor Unit), a ROM (Read Only Memory), RAM, etc. with the decode program. When the signal transmitted through a satellite is enciphered, a key and decode processing are needed for decoding this code. Then, reading appearance of this key is carried out from CAM33 through the card reader interface 32, and a demultiplexer (transport IC) 24 is supplied. A demultiplexer 24 decodes the enciphered signal using this key.

[0023] In addition, accounting information besides a key required for decryption and a decode program etc. is stored in this CAM33.

[0024] A demultiplexer 24 receives the input of the signal which the error correction circuit 23 of a front end 20 outputs, and makes the data buffer memory (SRAM:StaticRandom Access Memory) 35 once memorize this. And suitably, this is read, the decoded video signal is supplied to the MPEG (Moving Picture Experts Group) video decoder 25, and the decoded audio signal is supplied to the MPEG audio decoder 26.

[0025] The MPEG video decoder 25 makes DRAM25a memorize the inputted digital

video signal suitably, and performs decoding of the video signal compressed by the MPEG method. The decoded video signal is supplied to the NTSC encoder 27, and is changed into the luminance signal (Y) of NTSC system, a chroma signal (C), and a composite signal (V). A luminance signal and a chroma signal are outputted as an S video signal through the buffer amplifier 28Y and 28C, respectively. Moreover, a composite signal is outputted to the video signal line of the AV line 11 through buffer amplifier 28V.

[0026] In addition, as this MPEG video decoder 25, the MPEG 2 decryption LSI of SGS-ThomsonMicroelectronics (STi3500) can be used. the outline -- Nikkei PB company "Nikkei electronics" 1994.3.14 [ for example, ] (no.603) -- the 101st page thru/or 110 pages -- Martin It is introduced by Mr. Bolton.

[0027] moreover, MPEG 2-Transportstream -- being related -- the "newest MPEG textbook" of ASCII incorporated company August 1, 1994 issuance -- explanation is made by the 231st page thru/or 253 pages.

[0028] The MPEG audio decoder 26 makes DRAM26a memorize suitably the digital audio signal supplied from the demultiplexer 24, and performs decoding of the audio signal compressed by the MPEG method. In D/A converter 30, D/A conversion of the decoded audio signal is carried out, the audio signal of a left channel is outputted to the audio L signal line of the AV line 11 through buffer amplifier 31L, and the audio signal of a right channel is outputted to the audio signal R signal line of the AV line 11 through buffer amplifier 31R.

[0029] RF modulator 41 changes and outputs the composite signal which the NTSC encoder 27 outputs, and the audio signal which D/A converter 30 outputs to a RF signal. Moreover, when TV mode is set up, this RF modulator 41 carries out through [ of the RF signal of the NTSC system inputted from AV equipments such as a cable box, ], and outputs it to VCR or other AV equipments as it is.

[0030] In the case of this example, these video signals and audio signals will be supplied to VCR 2 and 3, the TV receiving set 5, and the EPG receiver 6 through the AV line 11.

[0031] CPU29 performs various kinds of processings according to the program memorized by ROM37. For example, a tuner 21, the QPSK demodulator circuit 22, the error correction circuit 23, etc. are controlled. Moreover, the AV equipment control signal transceiver section 39 is controlled, and a predetermined control signal is outputted to other AV equipments (in the case of this example VCR 2 and 3, the TV receiving set 5, the EPG receiver 6) through the control line 12, and the control signal from other AV equipments is received.

[0032] To this CPU29, the actuation button switch of the front panel 40 can be operated, and the direct input of the predetermined command can be carried out. Moreover, if a remote commander 5 ( drawing 4 ) is operated, outgoing radiation of the infrared signal will be carried out from that IR dispatch section 51, this infrared signal will be received by IR receive section 4B, and a light-receiving result will be supplied

to CPU29. Therefore, a predetermined command can be inputted into CPU29 also by operating a remote commander 5.

[0033] Moreover, a demultiplexer 24 incorporates EPG data etc. and EPG area 35A of the data buffer memory 35 is made to supply and memorize it in addition to the MPEG video data supplied from a front end 20, and audio data. EPG information includes the information (for example, the channel of a program, a transponder number, broadcasting hours, a title, a category, the actor name that is appearing on the program) about the program of each broadcast channel of a dozens of hours after [ current time ]. Since this EPG information is transmitted frequently, it can always hold the newest EPG to EPG area 35A.

[0034] The data (for example, the message receiving history for 4 week of a tuner 21, a power source channel number received just before [ off ] (last channel)) which want to hold after power-source off are suitably memorized by EEPROM38. And for example, when a power source is turned on, the same channel as a last channel is made to receive again. When the last channel is not memorized, the channel memorized by ROM37 as a default is received. Moreover, when the sleep mode is set up, even if it is CPU29 at the power-source OFF time, a front end 20, a demultiplexer 24, the data buffer memory 35, etc. make a minimum circuit operating state, and it clocks current time from the time information included in an input signal, and performs control which makes each circuit carry out predetermined actuation (the so-called timer sound recording etc.) to predetermined time of day. For example, VCR 2 and 3 is interlocked with and a timer automatic image transcription is performed.

[0035] Furthermore, CPU29 controls the MPEG video decoder 25 to generate predetermined OSD (On-Screen Display) data. The MPEG video decoder 25 generates predetermined OSD data corresponding to this control, writes them in the OSD area of DRAM25a, is read further and outputted. Thereby, an electronic program guide including a predetermined alphabetic character, a graphic form, etc., a menu, and others can be suitably outputted and displayed on the TV receiving set 5.

[0036] CPU29 can control a modem 34 and can communicate with other equipments through the telephone line again.

[0037] Drawing 4 expresses the example of a configuration of the button switch 50 of the remote commander 5 which carries out remote control of IRD4. The select button switch 131 is made as [ carry out / perpendicularly / to the top face of a remote commander 5 / it not only can operate it in the direction of a total of eight pieces of its four middle directions of slant besides the four directions of the direction of four directions (direction actuation), but / it / depression actuation (selection actuation) ]. The menu button switch 134 is operated when displaying a menu screen on the TV receiving set 5. The exit button switch 135 is operated when returning to the original usual screen.

[0038] In the number of the broadcast channel to receive, the channel up-and-down button switch 133 is operated, when risen or downed. The BORIUMU button switch



132 is operated when rising or bringing down BORJUMU.

[0039] The figure carbon button (ten key) switch 138 with which the figure of 0 thru/or 9 is displayed is operated when inputting the figure currently displayed. When actuation of the figure button switch 138 is completed, the ENTA button switch 137 means figure input termination, and is operated following it. When a channel is switched, the burner (banner) which consists of the number of a new channel, a call sign (name), a LOGO, and an e-mail icon is displayed for 3 seconds. There are two kinds, the thing of an easy configuration of becoming this burner from what was mentioned above, and the thing of a more detailed configuration of that the name of a program (program), broadcast start time, current time, etc. are further included other than these, and the display carbon button 136 is operated when switching the class of this burner displayed.

[0040] Television / video change-over button switch 139 is operated when switching the input of the TV receiving set 5 to an input (input from VCR 2 and 3 etc.) from the tuner 222 ( drawing 5 ) in which it is built there, or a video input terminal. Television / DSS change-over button switch 140 is operated when choosing the DSS mode in which the television mode or satellite broadcasting service which receives a ground wave (VHF) is received. If the figure button switch 138 is operated and a channel is switched, the channel before a switch is memorized, and the jump button switch 141 will be operated when returning to the original channel before this switch.

[0041] The language carbon button 142 is operated, when broadcast is performed by the language of two or more languages and predetermined language is chosen. Without minding a menu, the guide button switch 143 is operated, when displaying an electronic program guide on the TV receiving set 5 directly.

[0042] The cable button switch 145, the television switch 146, and the DSS button switch 147 are button switches for switching the device category of the code of the object for a function switch, i.e., the infrared signal by which outgoing radiation is carried out from a remote commander 5. The cable button switch 145 receives the signal transmitted through a cable with a cable box (not shown), when displaying this on the TV receiving set 5, it is operated, and thereby, outgoing radiation of the code of the device category assigned to the cable box is carried out as an infrared signal.

[0043] Similarly, the television button switch 146 is operated when displaying the signal received with the tuner built in the TV receiving set 5. The DSS button switch 147 receives the signal received through the satellite by IRD4, and when making it display on the TV receiving set 5, it is operated. LED148,149,150 is turned on when the cable button switch 145, the television button switch 146, or the DSS button switch 147 is turned on, respectively. Thereby, when various carbon buttons are pushed, it is shown to the device of which category whether the code was transmitted.

[0044] When the cable power-source button switch 151, the television power-source button switch 152, and the DSS power-source button switch 153 are operated,

respectively, a cable box, the TV receiving set 5, or the power source of IRD4 is turned on or turned off.

[0045] The muting button switch 154 is operated when setting up or canceling the muting condition of the TV receiving set 5. The sleep button switch 155 is operated when setting up or canceling the sleep mode which turns off a power source automatically when predetermined time of day comes, or when predetermined time amount passes.

[0046] Drawing 5 expresses the example of a configuration inside the TV receiving set 5. A tuner 222 restores to the signal received with the antenna 221 for VHF, outputs a synthetic circuit to CRT229 through 228, and displays a recovery signal. Moreover, the VBI data slicer 223 extracts VBI data from the output of a tuner 222, and outputs the extract result to a decoder 224. A decoder 224 decodes the VBI data which the VBI data slicer 223 outputs, generates EPG data and makes backed-up RAM (or EEPROM)225 memorize them.

[0047] Based on the EPG data memorized by RAM225, a controller 226 controls the generating circuit 227, generates OSD data (indicative data), and is outputted and displayed on CRT229 through the synthetic circuit 228.

[0048] The video signal transceiver section 230 performs processing which delivers and receives a video signal and an audio signal to the AV line 11, and the AV equipment control signal transceiver section 231 performs processing which delivers and receives a control signal to the control line 12. IR receive section 5B receives the infrared signal from a remote commander 5, and outputs a reception detection signal to a controller 226.

[0049] Drawing 6 expresses the example of a configuration of the remote commander 241 which carries out remote control of the EPG receiver 6. The EPG button switch 243 is operated when displaying the electronic program guide integrated by the TV receiving set 5. The device button switch 244 is operated when specifying an electronic program guide to unify. For example, in this example, although IRD4 and the TV receiving set 5 have the function to receive EPG, this device button switch 244 is operated and the figure corresponding to the number assigned to the TV receiving set 5 is inputted by operating the figure button switch 245 in this AV system 1 following it to display the electronic program guide of the device 5 of the arbitration of these, for example, TV receiving set.

[0050] Moreover, the figure button switch 245 is operated following the channel button switch 246, the program button switch 247, or the category button switch 248 to specify the category of a channel (CH), a program, or a program. Direction actuation and selection actuation are performed by the select button switch 249 like the select button switch 131 of the remote commander 5 of drawing 4.

[0051] When one of button switches is operated, outgoing radiation of the infrared signal corresponding to the operated button switch is carried out from IR dispatch section 242, and it is made as [ receive / by the EPG receiver's 6 IR receive section

6B ].

[0052] The EPG receiver's 6 controller 204 performs EPG data storage processing shown in the flow chart of drawing 7 in the condition that the power source is turned on. In step S21, a controller 204 chooses first the receiver which receives EPG data from the AV equipments connected to the AV system 1. For example, IRD4 is chosen first. Next, it progresses to step S22 and a controller 204 requires reception of EPG data from the receiver chosen at step S21. In now, a controller 204 requires reception of EPG data of IRD4 through the AV equipment control signal transceiver section 203 and the control line 12.

[0053] IRD4 receives this command through the AV equipment control signal transceiver section 39. The EPG receiver 6 and the manufacture manufacturer of IRD4 are not necessarily the same. Usually, when manufacturers differ, the commands which control each AV equipment also differ. Then, when the command which requires reception of EPG data from IRD4 is generated, a controller 204 supplies this command to a translator 205, and is made to change it into the command used in the manufacturer of IRD4. The translator 205 has memorized the command used in each manufacturer's system to EEPROM206 so that it can change into the command corresponding to each manufacturer. A translator 205 changes a command into the command of the manufacturer of IRD4 according to the stored data of this EEPROM206.

[0054] In addition, when each AV equipment is connected to the AV system 1, through the control line 12, to each AV equipment, the controller 204 asked the manufacture name and has memorized the manufacture name to RAM207. Then, a translator 205 is made to generate the command used by a manufacturer's system memorized by this RAM207.

[0055] Therefore, CPU29 of IRD4 can receive this command as a proper command through the AV equipment control signal transceiver section 39. And when this command is received, CPU29 controls a demultiplexer 24 and carries out reading appearance of the EPG data memorized by EPG area 35A of the data buffer memory 35. As mentioned above, the newest EPG data are always updated and memorized by EPG area 35A.

[0056] CPU29 will be outputted to the EPG receiver 6 through the AV equipment control signal transceiver section 39 and the control line 12, if this EPG data is read.

[0057] The EPG receiver's 6 controller 204 will receive this EPG data through the AV equipment control signal transceiver section 203.

[0058] And in step S23, it judges whether the conditions with which a user operates a remote commander 241 and remembers EPG data to be are specified. When especially the conditions that should be memorized are not specified, it progresses to step S25, and it is the conditions beforehand specified as a default, and RAM207 is made to memorize EPG data. In this case, that program of the program of all channels is chosen upwards, and required minimum information (for example, a broadcast channel,

a transponder name, a program name, broadcast time of day) is made to memorize fundamentally.

[0059] When judged with on the other hand the conditions which should be memorized in step S23 being specified, it progresses to step S24 and EPG data are memorized by RAM207 on the specified condition.

[0060] For example, a user can operate a remote commander 241 and can specify a predetermined channel as EPG (EPG which should be memorized to RAM207) which should be unified. Assignment of this channel is performed by operating the channel button switch 246 and the figure button switch 245 of a remote commander 241.

Moreover, when RAM207 wants to memorize only the EPG data of the program belonging to a predetermined category, the category is specified by operating the category button switch 248 and the figure button switch 245. Furthermore, when RAM207 wants to memorize the EPG data of a predetermined program, the program button switch 247 and the figure button switch 245 are operated, and the number which specifies the program is inputted.

[0061] When such conditions that should be memorized are inputted, a controller 204 makes RAM207 memorize the EPG data according to the specified conditions.

[0062] Next, return and other receivers are chosen as step S21. For example, the TV receiving set 5 is chosen as a receiver. And in step S22, a controller 204 requires reception of EPG data from the TV receiving set 5. This demand command is also changed into the command corresponding to the manufacturer of the TV receiving set 5 beforehand memorized by RAM207 by the translator 205. And this changed command is inputted into the AV equipment control signal transceiver section 231 of the TV receiving set 5 through the control line 12.

[0063] The controller 226 of the TV receiving set 5 reads the EPG data memorized by RAM225 in the input of this command at the time of a carrier beam from the AV equipment control signal transceiver section 231. Control a tuner 222, when EPG data are not memorized by RAM225, and EPG data are made to receive, and RAM225 is made to memorize. And the memorized EPG data are read and it outputs to the EPG receiver 6 through the AV equipment control signal transceiver section 231 and the control line 12.

[0064] When it is judged with the remember condition being specified in step S23 like the case where it mentions above, it makes RAM207 memorize that EPG data on the conditions which progressed to step S24 and were specified as it, when the EPG receiver's 6 controller 204 receives this EPG data through the AV equipment control signal transceiver section 203. Moreover, when the conditions memorized especially are not specified, it progresses to step S25, and RAM207 is made to memorize EPG data on the conditions specified as a default.

[0065] The EPG (or it memorizes beforehand) data which are connected to the AV system 1 as mentioned above at RAM207 and which reception of EPG data was required and were received to each AV equipment according to the demand collect

into RAM207, and are memorized.

[0066] In addition, in the processing shown in the flow chart of this drawing 7, the EPG data received in IRD4 and the TV receiving set 5 are fundamentally memorized by RAM207 with each format. Even if it is the case where it is broadcast in the time of day when it follows at, for example, the same programs differ in IRD4 and the TV receiving set 5 substantially, or the same time of day, each EPG data is fundamentally memorized by RAM207 altogether. Consequently, compared with the case where it unifies and memorizes, the capacity of RAM207 is mostly needed for the format which had data unified like the processing shown in the flow chart of drawing 8 mentioned later. However, [0067] which can improve operability by unifying a format in the phase of a display as it is shown in the flow chart of drawing 10 mentioned later, even if it does in this way Drawing 8 expresses other examples of processing which memorize EPG data. In this example, the receiver which receives EPG data by the EPG receiver's 6 controller 204 is chosen in step S31. As mentioned above, selection assignment of IRD4 is carried out. Next, it progresses to step S32 and a controller 204 requires reception of EPG data from IRD4 by which selection assignment was carried out at step S31. At the time of a carrier beam, IRD4 reads EPG data according to this demand, and outputs this demand to the EPG receiver 6. The above processings are the processing in steps S21 and S22 of drawing 7, and the same processing.

[0068] Next, it progresses to step S33 and a controller 204 changes the EPG data of IRD4 which received into the data of a predetermined format (integrated format). And it progresses to step S34 and the data changed at step S33 are memorized to RAM207.

[0069] Furthermore, return and following AV equipment 5, for example, TV receiving set, are chosen as step S31. And in step S32, reception of EPG data is required from the TV receiving set 5. The TV receiving set 5 receives EPG data according to this demand, and outputs this to the EPG receiver 6.

[0070] The EPG receiver's 6 controller 204 changes the received EPG data into the data of an integrated format in step S33. And the data progressed and changed into step S34 are memorized to RAM207.

[0071] The EPG data of the AV equipment connected to the AV system 1 as mentioned above are memorized by RAM207 in the state of an integrated format.

[0072] That is, although the EPG data which the AV equipment connected to the AV system 1 receives are put in a database in [ any ] the storage processing shown in drawing 7 and drawing 8 and RAM207 is made to memorize, in the case of the example shown in drawing 8, the EPG data of each AV equipment are memorized in the condition of having changed into the integrated format. It follows, for example, when the program (program which has the same program name) of the same content is substantially registered into EPG data in the same time of day or different time of day in IRD4 and the TV receiving set 5 as what is broadcast, common information is

memorized only one, and only information which is [ area / a broadcast time zone / broadcast ] different is memorized additionally. This becomes possible to lessen capacity of RAM207.

[0073] It can be judged from whether ten characters of the head of the program name (title) of the program are in agreement whether it is the same program. Or when ID of the proper unified into each program by the EPG system of a VBI method or a digital satellite method is added, it can judge by comparing ID.

[0074] Or it can also judge from whether the broadcast channel name is in agreement. In this case, since a program (for example, relay broadcast of a different baseball game) which is different in every every place region (service area) may be broadcast even if it is the same broadcast channel names, such as a sport relay broadcast, when it judges coincidence of a program name after the coincidence judging of a broadcast channel name and a different program exists, the processing saved as information is needed.

[0075] It becomes easy by unification-izing a format to search a predetermined program in this way further again. That is, since the EPG data of a program receivable by this AV system 1 are used as one unified database, in this database, once, it is only retrieval \*\*\*\* and can know promptly whether it is a program receivable by this AV system 1.

[0076] Moreover, if the EPG data of a program which the user looked at once have a demand of a user and it will be made to delete, they will become possible [ using the storage region of RAM207 more efficiently ]. It leaves the program name, without eliminating and a user can make RAM207 memorize that hysteresis as a program watched once at this time. If it does in this way, it will also become possible to search the program watched once.

[0077] To the EPG receiver's 6 RAM207, the newest EPG data always unify as mentioned above, and it puts in a database and memorizes.

[0078] Thus, although the electronic program guide of a different system is put in a database and memorized by the EPG receiver's 6 RAM207, the electronic program guides of each system differ fundamentally.

[0079] For example, in order to receive the program transmitted through satellite broadcasting service, not only a channel but the number of a transponder is needed. On the other hand, in order to choose the program transmitted through a ground wave, only a channel number is needed and the number of a transponder is unnecessary. Therefore, the transponder number is not contained in the EPG data received for the TV receiving set 5 although the number of a transponder is contained in the EPG data received by IRD4.

[0080] Moreover, these codes are not contained in the electronic program guide of satellite broadcasting service, although the required code is contained in them when making the timed recording of the program to the EPG data of the program received for the TV receiving set 5 with VCR 2 and 3 etc.

[0081] Such a difference is held as it is also in the EPG data after integration.

[0082] Next, with reference to the flow chart of drawing 9 , the processing in the case of choosing a desired program is explained. That processing is started when this processing operates the EPG button switch 243 of a remote commander 241.

[0083] In step S51, processing which displays an electronic program guide is performed first. As shown in the flow chart of drawing 8 , when it is carried out as shown in the flow chart of drawing 10 when storage processing to RAM207 is performed, as shown in the flow chart of drawing 7 , and storage processing is performed, this display process is performed as shown in the flow chart of drawing 11 .

[0084] That is, this data by which reading appearance was carried out is changed [ in / reading appearance of the EPG data first memorized / in / when carried out in the condition that the storage processing to RAM207 does not unify EPG data to a unification format fundamentally as shown in the flow chart of drawing 7 , as it is shown in drawing 10 / step S71 / by RAM207 is carried out, and / step S72 ] into the data of an integrated format. And in step S73, processing which displays the EPG data changed into integrated format data is performed.

[0085] A controller 204 changes the EPG data of IRD4 memorized by RAM207, and the EPG data of the TV receiving set 5 into the data of the format integrated on a display, and, specifically, outputs the data to the TV receiving set 5 through the AV equipment control signal transceiver section 203 and the control line 12.

[0086] When this EPG data is received through the AV equipment control signal transceiver section 231, the controller 226 of the TV receiving set 5 controls the generating circuit 227, and generates the indicative data (OSD data) corresponding to this EPG data. This OSD data is outputted and displayed on CRT229 through the synthetic circuit 228.

[0087] Thereby, although not unified on RAM207, it is displayed on CRT229 of the TV receiving set 5 in the format with which the EPG data of a different AV equipment (system) were unified [ in / at least / the display condition ]. Therefore, a user becomes possible [ choosing the program selection in a different AV equipment with the same actuation sensation ].

[0088] In addition, you may enable it to set up further the conditions of the EPG data displayed at the time of this electronic program guide display.

[0089] On the other hand, as shown in the flow chart of drawing 8 , when storage processing to RAM207 is performed, EPG data are memorized by RAM207 in the state of the format already integrated. Display processing of the EPG data of step S51 of drawing 9 in this case is performed as shown in drawing 11 .

[0090] That is, in step S81, a user specifies first the EPG data displayed among the EPG data memorized by RAM207. This assignment is equivalent to the record criteria specification processing in step S23 of drawing 7 . That is, although conditions are set up beforehand and it was made to make RAM207 memorize the EPG data corresponding to that condition, RAM207 is made to memorize all data fundamentally,

and he specifies predetermined conditions out of it, and is trying to read the EPG data with which are satisfied of that condition in this example in the example of drawing 7 . Thereby for example, the EPG data of a predetermined category are specified or the EPG data of the program which may have a predetermined program number can be displayed. Or when the actor who is appearing on each program is also registered into EPG data again, the actor is specified, and the EPG data of a program with which the actor is appearing can be read.

[0091] If such assignment is performed at step S81, reading appearance of the data specified in step S82 will be carried out from RAM207, and processing as which the data by which reading appearance was carried out is displayed will be performed in step S83.

[0092] That is, a controller 204 searches the EPG data corresponding to the specified conditions from the database memorized by RAM207, reads the data obtained as a result of the retrieval, and adds and outputs the OSD data generating command for TV receiving set 5.

[0093] Like the case where it mentions above, the controller 226 of the TV receiving set 5 makes the generating circuit 227 generate the OSD data corresponding to this inputted data, and is displayed on CRT229.

[0094] Drawing 12 is carried out in this way, and expresses the example of a display of the electronic program guide displayed on CRT229. Drawing 13 (electronic program guide which received by IRD4), drawing 14 (electronic program guide which received for the TV receiving set 5), and the electronic program guide of drawing 12 are compared, and where the electronic program guide shown in drawing 13 and drawing 14 is unified in the example of a display shown in drawing 12 , it is displayed so that clearly.

[0095] In addition, when the capacity of RAM207 runs short, as shown, for example in drawing 15 , the one section is deleted among EPG data and it can display.

[0096] If display processing of the electronic program guide of step S51 of drawing 9 is performed as mentioned above, next it will progress to step S52, and it will be judged whether direction actuation of the select button switch 249 of a remote commander 241 was performed. When judged with direction actuation having been performed, processing which moves cursor in the direction operated by progressing to step S53 is performed.

[0097] That is, direction actuation of the select button switch 249 of a remote commander 241 is carried out vertically and horizontally. Then, outgoing radiation of the infrared signal corresponding to this direction actuation is carried out from IR dispatch section 242, and it is received by the EPG receiver's 6 IR receive section 6B. The EPG receiver's 6 controller 204 makes a translator 205 generate the cursor advance command for TV receiving set 5, when a direction manipulate signal is received through IR receive section 6B. This command is transmitted to the TV receiving set 5 through the control line 12.



[0098] The controller 226 of the TV receiving set 5 moves the cursor ( drawing 12 ) which controls the generating circuit 227 and is displayed on the electronic program guide of CRT229 in the input of this command at the time of a carrier beam corresponding to the actuation direction. Time of day is displayed on an axis of abscissa, a channel is displayed on an axis of ordinate by this electronic program guide, and that program name is displayed on the location of the broadcast time of day of each channel. A program is chosen by moving cursor on the program name.

[0099] Next, it progresses to step S54 and it is judged whether selection actuation (press actuation) of the select button switch 249 was carried out. If selection actuation is not carried out, it returns to step S52 at the processing corresponding to return and direction actuation. When deciding selection of the program after a user moves cursor on a predetermined program, he presses the select button switch 249 and performs selection actuation. In step S54, when judged with this selection actuation having been performed, it progresses to step S55 and a controller 204 performs processing which generates the command code which chooses the program in which cursor is then located.

[0100] That is, when selection actuation is detected through the control line 12, the controller 226 of the TV receiving set 5 controls the AV equipment control signal transceiver section 231, and outputs the positional information in which cursor is then located to the EPG receiver 6 through the control line 12.

[0101] The EPG receiver's 6 controller 204 judges the program corresponding to that location for the input of this positional information through the AV equipment control signal transceiver section 203 at the time of a carrier beam. Since the controller 204 has generated itself the electronic program guide currently displayed on the TV receiving set 5, the program currently displayed there can be known from the positional information.

[0102] And a controller 204 generates the command which requires the reception to the AV equipment which receives the program. For example, when the program (namely, program broadcast through a satellite) received by IRD4 is chosen, the command which requires the reception is generated to IRD4, and when it is the program (namely, program broadcast by the ground wave) received for the TV receiving set 5, the command which requires the reception is generated to the TV receiving set 5.

[0103] Next, it progresses to step S56 and a controller 204 makes the command code corresponding to the manufacturer of the AV equipment (in the case of now IRD4 or the TV receiving set 5) of delivery and a sending-out place change the generated command into a translator 205. And the command code corresponding to the manufacturer of the AV equipment is sent out to the AV equipment (IRD4 or TV receiving set 5) through the control line 12 in step S57.

[0104] Although this command transform processing is especially shown typically in step S56, it is suitably performed also in EPG data storage processing, cursor

advance processing, etc. by above-mentioned explanation so that clearly.

[0105] IRD4 orders it reception of the program which controlled the front end 20 at the time of a carrier beam, and was specified in the input of this request-to-receipt signal through the AV equipment control signal transceiver section 39. Consequently, the program corresponding to a command is received and the video signal is transmitted to the TV receiving set 5 through the AV line 11.

[0106] Through the video signal transceiver section 230, at the time of a carrier beam, the TV receiving set 5 outputs this to CRT229 through the synthetic circuit 228, and displays the input of this video signal.

[0107] On the other hand, when a request-to-receipt signal is received through the AV equipment control signal transceiver section 231, the controller 226 of the TV receiving set 5 controls a tuner 222, and orders it reception of the specified program. Consequently, the video signal received by the tuner 222 is outputted and displayed on CRT229 through the synthetic circuit 228.

[0108] When the program of the channel as which the carrier beam AV equipment (IRD4 or TV receiving set 5) was specified in the input of the command of request to receipt is received, the status signal showing reception having been completed is outputted to the EPG receiver 6 through the control line 12.

[0109] The EPG receiver's 6 controller 204 is step S58, and when it detects that received the input of this status signal and the reception of the specified program was completed, it ends processing. By a certain reason, when reception of the specified program is not able to be completed, the input of this status signal cannot be received. Then, in this case, it progresses to step S59 and error processing is performed. For example, a controller 204 generates an error message, outputs it to the TV receiving set 5 through the control line 12, and displays it.

[0110] Although various kinds of commands were inputted into the EPG receiver 6 through the remote commander 241 of dedication, prepare the EPG receiver 6 the LCD panel 261 and the touch panel 262 of transparency, and various kinds of displays are made to perform on the LCD panel 261, and a touch panel 262 is made to operate it with a finger etc., and it can make it possible to perform various kinds of inputs in the above example, as shown, for example in drawing 16 . In this case, the electronic program guide integrated by the LCD panel 261 can be displayed, and a predetermined program can be made to choose by operating a touch panel 262.

[0111] In addition, in the above example, although the actuation which chooses a predetermined program was explained, of course, it is possible to make it also make VCR 2 and 3 etc. make the timed recording of the selected program.

[0112] In the above-mentioned example, although the remote commander 241 of the dedication which carries out remote control of the EPG receiver 6 was formed, it is also possible to control the EPG receiver 6 using other AV equipments 5, for example, the remote commander which carries out remote control of IRD4 (and TV receiving set 5). In this case, actuation of various kinds of button switches of a remote

commander 5 generates the infrared signal corresponding to that actuation from IR dispatch section 51.

[0113] CPU29 of IRD4 will output the command corresponding to that control signal to the EPG receiver 6 through the remote control line 12, if the input of the control signal by this IR signal is received through IR receive section 4B. The EPG receiver's 6 controller 204 will perform corresponding processing, if this command is received through the AV equipment control signal transceiver section 203.

[0114] In this case, the EPG data unified like the case where it mentions above, to that RAM207 when the EPG receiver 6 was constituted, as shown in drawing 2 can be made to memorize.

[0115] In addition, the infrared signal in which a remote commander 5 carries out outgoing radiation is directly received by the EPG receiver's 6 IR receive section 6B, and various kinds of actuation can be performed.

[0116] In the above-mentioned example, although the EPG data of the program which IRD4 receives, and the IRD data of the program which the TV receiving set 5 receives were unified to the 3rd integrated format different, respectively from both, an EPG format of the program of the TV receiving set 5 is unified by changing into an EPG format of the program of IRD4, or conversely, the EPG data of IRD4 are changed into an EPG format of the TV receiving set 5, and can be unified.

[0117] For example, when controlling the EPG receiver 6 by the remote commander 5 of IRD4, the EPG data of the TV receiving set 5 are changed into a format of the EPG data of IRD4, and can be unified. And although this unified EPG data can be memorized to the EPG receiver's 6 RAM207, EPG area 35A of IRD4 can be made to memorize. In this case, as shown in drawing 17, RAM207 becomes unnecessary at the EPG receiver 6.

[0118] Thus, the example of a display of the electronic program guide at the time of changing and unifying the EPG data of the TV receiving set 5 to a format of the EPG data of IRD4 is shown in drawing 18. Also in this example of a display, the electronic program guide of a different receiving system can be used as a common electronic program guide like the case in the example of a display shown in drawing 12. And since it does not necessarily consider as the 3rd new format in the case of this example, it is the sensation which always operates the electronic program guide of IRD4, and it becomes possible to operate program selection etc.

[0119] In the above-mentioned example, although it was made to carry out remote control only of the EPG receiver 6 with a remote commander 241, as shown in drawing 19, the EPG receiver 6 is connected with a remote commander 241 with the control line 13, and other AV equipments can be controlled directly by the infrared signal which the EPG receiver 6 generates, for example. In this case, IR receive section 2B and 3B are prepared in VCR 2 and 3 like IR receive section 5B of the TV receiving set 5, IR receive section 4B of IRD4, etc. And when outputting a command to other AV equipments from the EPG receiver 6, a remote commander 241 is

controlled through the control line 13, and it is made to make a command output to each AV equipment with an infrared signal.

[0120] In this case, as shown in drawing 20 , the IR control section 271 is prepared for the EPG receiver 6. And since a translator 205 is what needed when a command is sent out to other AV equipments, it is made to make it build in a remote commander 241, without preparing the EPG receiver 6, as shown in drawing 21 .

[0121] When outputting a command to other AV equipments, a controller 204 controls the IR control section 271, and sends a signal to a remote commander 241 through the control line 13. A remote commander 241 changes the input of a command into the command corresponding to each AV equipment by the translator 205 at the time of a carrier beam, and generates an infrared signal.

[0122] However, from IRD2 or the TV receiving set 5, since it is necessary to receive transmission of EPG data, it is necessary to connect the EPG receiver 6 with other AV equipments with the control line 12 at least.

[0123] In addition, as typically shown in drawing 22 , the antenna 221 which receives a ground wave receives the EPG data which the TV receiving set 5 receives, or the electric wave transmitted through the satellite 301 which IRD4 receives is received by receiving with an antenna 61, and also it is possible to receive other EPG data and to unify this through a pager 304, a cable 306, a radiotelephone 305, etc., for example.

[0124] Moreover, as shown in drawing 23 , when an EPG receiver recognizes two or more set (EPG receiver 6-1 and EPG receiver 6-2) existence, further, combine this, generate one EPG (association EPG) integrated, and the EPG receiver 6-1 or one side of 6-2 is made to memorize this, or other equipments can be made to memorize.

[0125] Moreover, as shown in drawing 24 , when two or more EPG receivers exist, a concrete display can be made to perform using the EPG receiver which has more excellent display capabilities (it has the outstanding OSD function).

[0126] For example, in the example of drawing 24 , the receiver 6-1 which receives the electric wave broadcast from a satellite through an antenna 61, and receives the EPG data from the EPG receiver 6-2 which receives a ground wave with an antenna 221 and receives the EPG data has the more advanced display function. In this case, although the database 351 integrated based on the EPG data received with the EPG receiver 6-2 and the EPG receiver 6-1 is generated, when making the display corresponding to the EPG data integrated by the receiving set 5 at this database 351 perform, it is made to perform that control not using the EPG receiver 6-2 but using the EPG receiver 6-1. Thereby, the EPG data of the EPG receiver 6-2 in which display capabilities are inferior also have more advanced display capabilities substantially.

[0127] In the above example, although the EPG data of a different system at each home were unified, as shown in drawing 25 , in the predetermined relay base office 321, the EPG data with which various kinds became independent are received through an antenna 322 thru/or 324, a cable 325, etc., and this can be unified. And the relay

base station 321 receives a request of offer of the EPG data with which specification was unified from each home through the telephone line 330, and can transmit the EPG data by which carrier beam integration was carried out in the request to each home through an antenna 326,327,328 or a cable 329.

[0128] In this case, since the relay base office 321 enables it to extract only the EPG data in that service area (area), POSUTARU codes (mail distribution area information for specifying the area which delivers mail), such as a zip code (ZIP code), are included in EPG data, and can be transmitted. In a receiving side, the POSUTARU code in a service area is specified and only the EPG data which have a POSUTARU code in a service area are extracted. And only the extracted EPG data are unified.

[0129] Moreover, for example, in the U.S., the offset information for summer time amendment (Daylight Savings Time Correction) is included at the broadcast time of day of the program of the EPG data transmitted through a satellite. Furthermore, it sets to the U.S. PST (Pacific Standard Time), Since there is the time of four criteria of MSD (Mountain Standard Time), CST (CentralStandard Time), and EST (East Standard Time) The broadcast time of day of EPG used in an every place region must be displayed in the time of which [ according to the area of the viewer of the inside at the time of four criteria ] criterion, and, for the reason, needs to perform time zone amendment. And each standard time is expressed with the offset value from Greenwich mean time. According to that service area, the relay base office 321 can amend this offset value, can perform summer time amendment further based on the offset information transmitted through a satellite, and can use it as the EPG data which this unified.

[0130] In addition, the EPG receiver 6 can also be made to contain the receiving circuit of the dedication which receives all the EPG data of the AV system 1.

[0131]

[Effect of the Invention] Since the 1st electronic program guide and 2nd electronic program guide were unified like the above according to an electronic program guide system according to claim 1 and the electronic program guide method of presentation according to claim 13, operability improves and it becomes possible promptly and certainly to choose a desired program.

[0132] Moreover, according to the electronic program guide system according to claim 14, it becomes possible to choose a desired electronic program guide by making an easy and certainly fine area into a unit out of the electronic program guide which changes with areas, since mail delivery area information was used as information which specifies an area when the electronic program guide of a predetermined area was chosen.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the example of AV structure of a system which applies the electronic program guide system of this invention.

[Drawing 2] It is the block diagram showing the example of a configuration of the EPG receiver 6 of drawing 1 .

[Drawing 3] It is the block diagram showing the example of a configuration of IRD4 of drawing 1 .

[Drawing 4] It is drawing showing the example of a configuration of the remote commander which carries out remote control of IRD4 of drawing 3 .

[Drawing 5] It is the block diagram showing the example of a configuration of the TV receiving set 5 of drawing 1 .

[Drawing 6] It is drawing explaining the button switch of the remote commander 241 of drawing 1 .

[Drawing 7] It is a flow chart explaining actuation of the data storage of the EPG receiver 6 of drawing 2 .

[Drawing 8] It is a flow chart explaining actuation of other data storage of the EPG receiver 6 of drawing 2 .

[Drawing 9] It is a flow chart explaining actuation of program selection of the EPG receiver 6 of drawing 2 .

[Drawing 10] It is the flow chart which shows the example of processing of an electronic program guide display of step S51 of drawing 9 .

[Drawing 11] It is the flow chart which shows other examples of processing of an electronic program guide display of step S51 of drawing 9 .

[Drawing 12] It is drawing showing the example of a display in step S51 of drawing 9 .

[Drawing 13] It is drawing showing the example of a display of the EPG data of IRD4 of drawing 1 .

[Drawing 14] It is drawing showing the example of a display of the EPG data of the TV receiving set 5 of drawing 1 .

[Drawing 15] It is drawing showing other examples of a display in step S51 of drawing 9 .

[Drawing 16] It is the block diagram showing other examples of a configuration of the EPG receiver 6 of drawing 1 .

[Drawing 17] It is the block diagram showing the example of a configuration of further others of the EPG receiver 6 of drawing 1 .

[Drawing 18] It is drawing showing the example of a display of further others of step S51 of drawing 9 .

[Drawing 19] It is drawing showing other examples of AV structure of a system which applied the electronic program guide system of this invention.

[Drawing 20] It is the block diagram showing the example of a configuration of the

EPG receiver 6 of drawing 19 .

[Drawing 21] It is drawing showing the example of a configuration of the remote commander 241 of drawing 19 .

[Drawing 22] It is drawing explaining control of a display in case two or more EPG receivers exist.

[Drawing 23] It is drawing explaining integration of two or more EPG receivers' EPG data.

[Drawing 24] It is drawing explaining a display action in case two or more EPG receivers exist.

[Drawing 25] It is drawing explaining the example which unifies EPG data through a relay base station.

[Description of Notations]

1 AV System

2,3 VCR

4 IRD

5 Television Receiver

6 EPG Receiver

11 AV Line

12 Control Line

202 Video Signal Transceiver Section

203 AV Equipment Control Signal Transceiver Section

205 Translator

206 EEPROM

207 RAM

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